NSROC General Explanation

Prepared by:

Norm Schultz

Sounding Rocket Projects Office

757-824-1923 Fax 2405

Norman.E.Schultz.1@gsfc.nasa.gov

Contents

NSROC General Information

- Contract began 2/1/99
  - Mechanism for Privatization of the NASA Sounding Rocket Program
  - Performance Based Contract (PBC)
    - NASA says what, not how
  - Cost + Award/Incentive Fee
  - Indefinite Delivery / Indefinite Quantity (IDIQ)
  - 4 year base period with two possible 3 year extensions
  - Target Flight Rate of 20 Missions per Year

NSROC General Information

- Contract began 2/1/99 (continued)
  - Requires marketing of WFF
  - 4% of the gross revenue paid to NSROC will be allocated to a marketing investment plan
    - Including marketing tasks
    - Cost reinvested in 5 WFF areas
      - Marketing effort, technology improvements, student outreach, employee bonuses, improved business processes

Roles and Responsibilities

- NASA (SRPO/Sounding Rocket Projects Office)
  - Overall Program Management
  - Ground & Flight Safety
  - NSROC Management & Insight
  - Customer Interface
  - Acquisition of Surplus Rocket Motors
  - Ownership of Programmatic Assets
  - Programmatic Vision & Enhancements
  - Range Facilities
- NSROC Contractor
  - Sounding Rocket Mission Management
  - Hardware & Equipment Acquisition
  - Operational Capabilities
  - Analysis, Design, Fabrication, Integration, & Testing
  - Launch Vehicle Preparation
  - Field Operations
  - Post Launch Operations

Roles and Responsibilities (continued)

- Customer Interface
  - PI selected by HQs same as pre-NSROC
  - SRPO conducts Mission Initiation Conference (MIC)
    - PI presents his requirements to NASA and NSROC
  - NSROC contractor conducts Requirements Definition Meeting (RDM) no later than 45 days after MIC
    - Presents method to fulfill PI requirements and cost
  - SRPO assigns mission tasks after thorough review of both the PI requirements and the method of NSROC requirement fulfillment
  - **Any major change in mission requirements require SRPO to amend the task**

Roles and Responsibilities (continued)

- Range Facilities
  - SRPO provides launch range services and schedules the missions
    - Including any applicable CSOC support
  - NSROC coordinates mission requirements (gases, etc) with range/CSOC

NSROC Task Types

- Service center tasks
  - Not really tasks but are three charge numbers set up to distribute overhead costs across tasks
    - Engineering – Engineers charge labor to perform equipment upgrades, calibration, etc
    - Manufacturing – Technicians charge labor to perform maintenance, etc. Includes contract vehicle lease costs
    - Shop – Technicians charge labor to do machine and electrical shop maintenance
  - Some equipment (such as computers) charged to service centers

NSROC Task Types

- Service center tasks (continued)
  - Some idle time charged to service centers
  - Service center costs allocated to all other tasks (including marketing tasks) via a tax per hour
    - Estimate for charges adjusted quarterly
    - Actuals are adjusted (retroactively) yearly

NSROC Task Types

- Missions
  - 5 Mission Complexity Levels
    - Level 1 = Refly with replace some parts
    - Level 2 = New payload with low complexity
    - Level 3 = New payload with moderate complexity
    - Level 4 = New payload with high complexity
    - Other = Does not meet the above definitions or is comprised of a portion of one of the above

NSROC Task Types

- Missions (continued)
  - Task earns Award Fee and Incentive Fee
    - Early "transition" tasks with NASA mission mgrs were done as fixed fee
  - 3 main task components
    - Labor
    - Hardware
    - ODCs
  - Labor
    - Price (loaded) for the 5 complexity levels was negotiated and fixed at contract award

NSROC Task Types

- Missions (continued)
  - Labor (continued)
    - Amount ranges from approximately $200K (Level 1 refly) to approximately $800K (Level 4)
    - Task includes an amount for service centers
    - Comprised of average amount of labor for that complexity level (no difference for launch ranges, etc.)

NSROC Task Types

- Missions (continued)
  - Hardware
    - No contractually binding price for hardware
    - Different on every task
    - Hardware cost and G&A paid at time of receipt
      - Task only includes fee on that amount of new hardware used
    - Aerojet and Space Vector costs are not tasked or charged to the mission
    - Average amounts of F10 stock tasked per level
  - Shipping, travel and other ODCs are included in task and vary as applicable

NSROC Task Types

- SOW 1
  - The overhead described in Section 1 of the Statement of Work. Contractually binding price for each of 10 years established before contract award..
  - Task earns Award Fee

NSROC Task Types

- Performance Task Order (PTO)
  - Task to enable work for other than missions
    - Fabrication, test, engineering support, etc
  - Cost estimate is done for each task
  - Contractually binding price for every labor category (Engineer 1, technician 5, etc) per hour for each of 10 years established before contract award.
  - Task includes service center “tax” per hour
  - Tasks earn Incentive Fee

NSROC Task Types

- Marketing Task Order (MTO)
  - Task between NSROC and a commercial or government entity
  - After approval (only if task is over $100K) there is no NASA involvement
  - Task includes service center “tax” / hour
  - Rental rates for GFP equipment for commercial use will be collected and credited to NASA
  - Cannot interfere with NASA tasks

NSROC Fee Types

- Objective Fees
  - Fixed Fee - used on early mission tasks where NSROC had no mission responsibility. Some missions transitioned to AF/IF at DR or MRR
  - Incentive Fee - determined by performance metrics and/or formulas
- Subjective Fees
  - Award Fee – Performance is graded via metrics. Amount determined by Performance Evaluation Board (PEB) every 6 months

NSROC Mission Fees

- Task Target Fee % is dependent on task complexity
  - Target fee % increases as complexity increases
  - Includes a max fee provision that is ~3% higher than target fee
- Target fee comprised of 4 fee components
  - 55% from Incentive Fee components
  - 45% from Award Fee components

NSROC Mission Fees (continued)

- IF is comprised of Mission Outcome IF (MOIF) & Cost IF (MCIF)
  - Earn all MOIF if mission is minimum success; earn $0 MOIF if mission is a failure (for any reason)
  - Earn all MCIF if actual cost=target cost. MCIF determined by underrun and overrun share ratios otherwise
    - Actual MCIF = target MCIF + ($ underrun * NSROC underrun share ratio %. Total mission fee earned/awarded <= Max fee % * target cost
    - Actual MCIF = target MCIF - ($ overrun * NSROC overrun share ratio %. MCIF cannot be < $0
  - MOIF%/MCIF% mix dependent on complexity level
    - 70/30, 65/35, 60/40, 50/50 for Level 4, 3, 2, 1

NSROC Mission Fees (continued)

- AF is comprised of SOW Performance Award Fee (SPAF) & Mission Outcome Award Fee (MOAF)
  - SPAF is 45% of the Mission AF
    - Includes the evaluation of: The performance of the requirements and standards defined in the SOW Sections 2.0 through 4.0 including meeting individual project milestone schedules, safety, and general flexibility in adjusting to potentially dynamic scientific and mission requirements.
    - Graded via Code 810 ISO9001 evaluation sheets at RDM, DR, MRR, & after MCR

NSROC Mission Fees (continued)

- SPAF is 45% of the Mission AF (continued)
  - SPAF is evaluated after milestones are completed as follows:
    - up to 35% of the SPAF for completing the Design Review (DR) - Design Phase (include Requirements Definition Meeting, RDM, grade).
    - up to 35% of the SPAF for completing the Mission Readiness Review (MRR) - Integration & Test Phase
    - up to 30% of the SPAF for completing the Mission Closeout Report (MCR) - Field, Launch & Report Phase
    - if no DR, 50% for MRR & 50% for MCR

NSROC Mission Fees (continued)

- MOAF is 55% of the Mission AF
- MOAF largely determined by scientist recommendation to NASA Sounding Rocket Office
- Earned MOAF = C * MOAF

  C is positive (0 to 1) when mission success is between minimum & comprehensive or failure is not fault of NSROC (due to experiment or range)

NSROC Mission Fees (continued)

- Earned MOAF = C * MOAF (continued)

  C is negative (up to - 4) when NSROC is responsible for the failure

Failure Assessment	C
No fault of NSROC	1.0
Exp failure due to poor testing	
Poor range coordination	
TM, Electrical, ACS random component failure	
Payload mechanical system failure	
TM or Electrical failure due to poor procedure compliance	
ACS/RCS failure	
Vehicle failure w/payload surviving – contractor fault	
Vehicle failure w/ loss of payload – contractor fault	-4.0

NSROC Mission Fees (continued)

- Mission Target Fee Summary

Complexity Level	Target Fee %				NSROC Overrun Share Ratio	NSROC Underrun Share Ratio
	MOIF	MCIF	SPAF	MOAF		
4	38.50%	16.50%	20.25%	24.75%	30%	20%
3	35.75%	19.25%	20.25%	24.75%	40%	30%
2	33.00%	22.00%	20.25%	24.75%	50%	40%
1	27.50%	27.50%	20.25%	24.75%	60%	50%

NSROC Mission Fees (continued)

- Example Mission Fees Earned (assuming a mission where actual cost = target cost and all SPAF is earned)

Mission Success Description	Level	% of Target Fee Earned				Total Fee Earned
		MOIF	MCIF	SPAF	MOAF	
Comprehensive Success	4	38.50%	16.50%	20.25%	24.75%	100%
Minimum Success	4	38.50%	16.50%	20.25%	0.00%	75%
Experiment Failure (not fault of NSROC)	4	0.00%	16.50%	20.25%	24.75%	62%
Experiment Failure (failure of NSROC to adequately test)	4	0.00%	16.50%	20.25%	0.00%	37%
Failure (gross NSROC failure with payload loss)	4	0.00%	16.50%	20.25%	-99.00%	-62%
Experiment Failure (not fault of NSROC)	1	0.00%	27.50%	20.25%	24.75%	73%
Experiment Failure (failure of NSROC to adequately test)	1	0.00%	27.50%	20.25%	0.00%	48%
Failure (gross NSROC failure with payload loss)	1	0.00%	27.50%	20.25%	-99.00%	-51%

NSROC SOW1 Fees

- Consists of Administration and Management Award Fee (AMAF) & has three sub-factors to evaluate
  - General Business Management and Administration
    - 8 evaluation areas
  - Utilization of WFF Assets and Capabilities
    - 3 evaluation areas
  - Cost Effective Utilization of Sounding Rocket Hardware, Technology Innovation, and Technology Transfer
    - 4 evaluation areas
  - One AMAF grade is subjectively given….. Sub-factors are **not** individually rated

NSROC SOW1 Fees (continued)

- **General Business Management and Administration Sub-Factor includes the evaluation of NSROC:**
  - General management
  - Small business goals
  - GFP management / utilization
  - Maintenance & management of operational capabilities
  - Dissemination of information
  - Cost control
  - Timeliness, Effectiveness of employee relationships, Safety & health
  - Employee training

NSROC SOW1 Fees (continued)

- Utilization of WFF Assets and Capabilities Sub-Factor includes evaluation of :
  - Quality and value of work resulting from the NSROC marketing effort
  - Investment plan actual vs. plan
  - Implementation of Marketing plan

NSROC SOW1 Fees (continued)

- Cost Effective Utilization of Sounding Rocket Hardware Sub-Factor includes evaluation of :
  - Acquiring quality components and systems at reasonable prices
  - Using existing GFP hardware whenever possible
  - Reusing flight hardware to the greatest extent practicable
  - Engaging in technology innovation activities that will enhance the capabilities of the sounding rocket program and benefit the scientific community in a cost effective manner.

NSROC PTO Fees

- Task Target Fee % is dependent on task complexity and schedule requirements
  - Target fee % increases with task complexity
  - Includes a max fee provision that is ~3% higher than target fee
  - All PTO Fee is Incentive Fee
    - Comprised of cost (>=20%) , technical, & schedule
  - Earn all cost fee if actual cost = target cost
    - Cost fee determined by underrun and overrun share ratios otherwise (can range from 0 to max fee amount)
      - Share ratio %s vary with task complexity
      - For overrun share ratio of 50%, $.50 of cost fee is taken for every $1.00 of over run. Minimum cost fee is $0.00
      - For underrun share ratio of 50%, $.50 of cost fee is added for every $1.00 of under run. Max cost fee limited by max fee % * target cost.

NSROC Fee Summary

Task Type	Task Level	Fee Type								
Mission			% of Target Fee						NSROC Overrun Share Ratio	NSROC Underrun Share Ratio
			SPAF	MCIF	MOIF	MCIF	SPAF	MOAF		
	4	AF(45%)IF(55%)	70%	30%	38.50%	16.50%	20.25%	24.75%	30%	20%
	3	AF(45%)IF(55%)	65%	35%	35.75%	19.25%	20.25%	24.75%	40%	30%
	2	AF(45%)IF(55%)	60%	40%	33.00%	22.00%	20.25%	24.75%	50%	40%
	1	AF(45%)IF(55%)	50%	50%	27.50%	27.50%	20.25%	24.75%	60%	50%
	Other	AF(45%)IF(55%)	Custom - generally based on the figures for the closest appropriate complexity level							
SOW1	NA	AF								
PTO			% of Target Fee						NSROC Overrun Share Ratio	NSROC Underrun Share Ratio
			Technical Perf		Cost Perf		Schedule Perf			
	1	IF	60		20		20		30%	20%
	2	IF	60		30		10		40%	30%
	3	IF	20		40		40		50%	40%
	Other	IF	Custom - generally based on the figures for the closest appropriate complexity level							

NSROC Performance Evaluation Board

- The NSROC Performance Evaluation Board (PEB) meets and evaluates Award Fee (AF) to be given for the previous 6 month rating period
  - SOW1 Award Fee (AMAF)
  - Mission Award Fee (SPAF and MOAF)

- The PEB will receive a written assessment on all areas from the COTR (includes reports from the CO, monitors, etc) and from NSROC.